

A NOTE ON THE COMPOSITION OF THE LERP AND HONEYDEW OF
EUCALYPTOLYMA MAIDENII FROGGATT

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Synopsis

The lerp of this insect consists of starch. Starch of animal origin has not been previously reported. The honeydew contains a number of rare sugars, very different from the sugars of the sap. One of the sugars in the honeydew of *Eucalyptolyma maidenii* has not been previously reported. The name proposed for this sugar is Psyllose.

Plant lice and Lerp insects belong to the family Psyllidae. The nymphs of many of them secrete a waxy or papery material which acts as a protective scale or lerp. In a number of these, including *Eucalyptolyma maidenii* Froggatt, the lerp is composed of starch. This observation is of interest in that the lerps of psyllids are the only known examples of starch of animal origin. This was first noted in the analysis of a specimen of the lerp of *Cardiaspina densitexta* Taylor, sent to the author by Dr. T. C. R. White of the University of Adelaide. The lerp material is excreted from the anus of the nymph like paste being squeezed from a tube and is built up by the insect into a form characteristic of the insect. In the case of *E. maidenii* the lerp is shaped like a fern leaf, slightly less than 1 cm. long and about 3 to 4 mm. wide at its broadest part. Other insects make lerps of different shapes. The lerp of *Lasiophylla striatus* Froggatt, resembles the small shell of a bivalve. Another characteristic of the insect is that it lives on a specific host; *E. maidenii* has been found only on the leaves of *Eucalyptus maculata* while the lerps of *Lasiopsylla* are confined to *Euclyptus umbra*. Even where the sucker growth of these two eucalypts is intermingled the lerps are confined to their specific hosts.

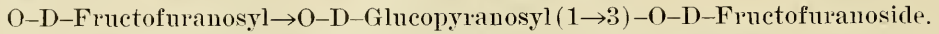
The lerp has been found to consist of dextrin, amylose and amylo-pectin. These are all polymers of glucose of increasing complexity. The molecule of dextrin consists of fifty to a hundred glucose units joined by (1→4) linkages, amylose, the substance which gives the characteristic blue colour with iodine, consists of a chain of one hundred to three hundred units while the amylo-pectin molecule is a network of three hundred to six thousand units.

TABLE I
The percentage composition of lerp of E. maidenii and of plant starch

	Eucalyptolyma	Average of Plant Starches
Amylose	23.6	20
Amylo-pectin	42.5	60
Dextrin	24.4	Nil
Moisture	9.7	20

The composition of the lerp differs from that of most vegetable starches as is shown in Table I.

In addition to the lerp the insect secretes honeydew. This consists of a mixture of sugars, many of which do not occur in plant sap. The composition of the honeydew of *Eucalyptolyma maidenii* is not unlike that of *Eriococcus coriaceus* Mask. (Baden, 1967). There is, however a sugar in the honeydew of *Eucalyptolyma* which has not been found in that of *Eriococcus*. It has not been previously described and the name Psyllose is proposed for it. This sugar is a tri-saccharide and has the composition:



The nature of the link between the first and second groups has not yet been determined.

TABLE 2
Components of the honeydew of Eriococcus and of Eucalyptolyma

				<i>Eriococcus coriaceus</i>	<i>Eucalyptolyma maidenii</i>
Eriose	+	+
Raffinose	+	+
Melezitose	+	+
Psyllose	-	+
Laminaribiose	+	-
Turanose	+	+
Glucose	+	+
Fructose	+	+

Reference

BADEN, R., 1968.—The occurrence and composition of the sugars in the honeydew of *Eriococcus coriaceus*. *Proc. Linn. Soc. N.S.W.*, 92 (1967): 222.